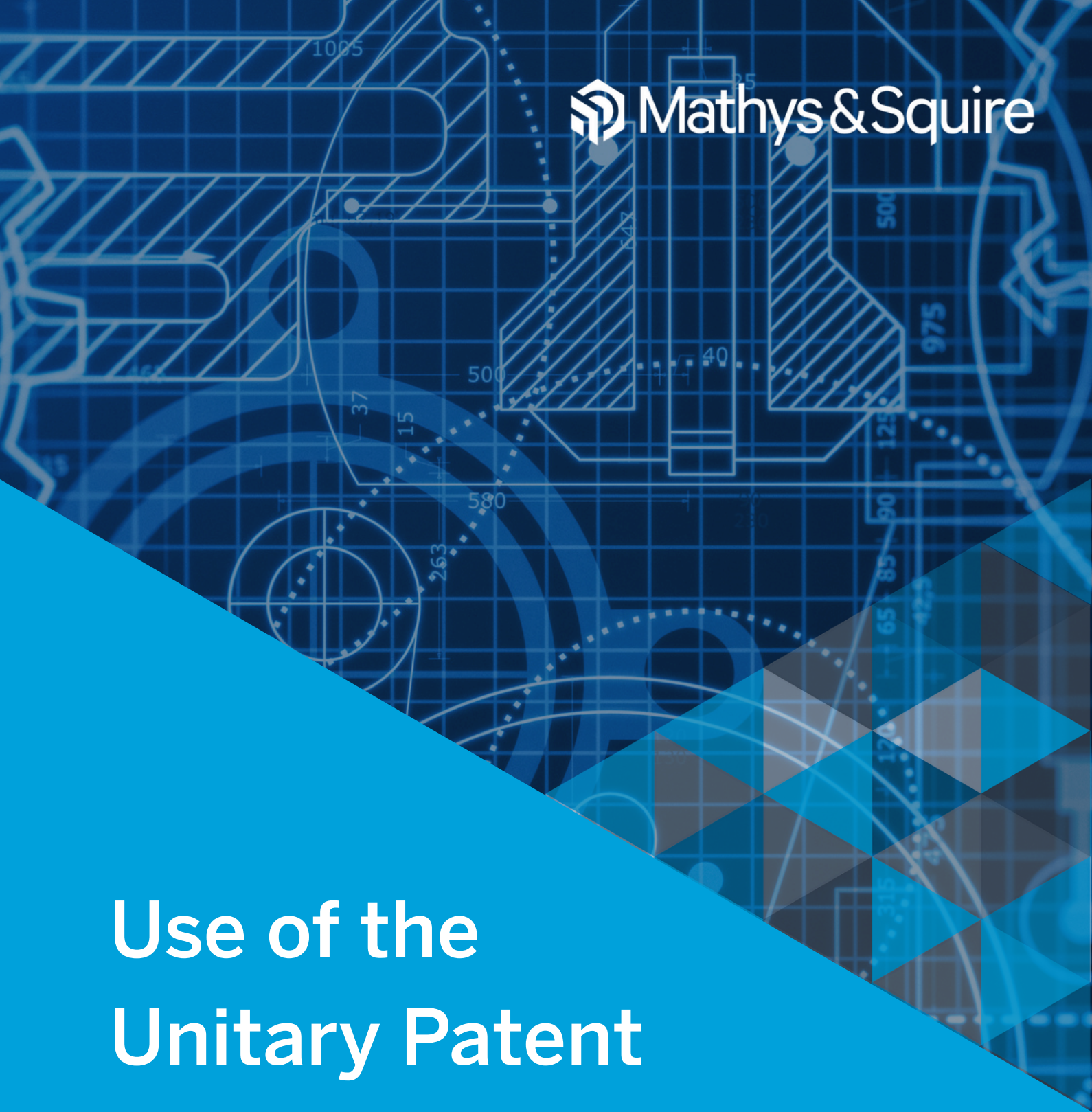


Mathys&Squire

Use of the Unitary Patent System

IT & Engineering

July 2025

July 2025

About Mathys & Squire

Dedicated to protecting and defending your future.

Mathys & Squire is an intellectual property (IP) powerhouse that puts its specialist knowledge to work for clients, to strengthen and secure what most modern businesses today treat as one of their most valuable strategic assets - intellectual property.

The firm's agile teams of attorneys, scientists and strategists are steeped in experience, working with IP-rich and high-growth industries to leverage complex technologies and sophisticated commercial models across a broad range of industry sectors.

A full-service IP firm, Mathys & Squire has unrivalled expertise in patents, trade marks, design protection and litigation. Highly ranked in leading legal and IP directories, and leading the field with insight, innovation and quality, Mathys & Squire will be celebrating its 115th Anniversary this year, testament to its proven track record in the protection and commercialisation of IP rights.

The firm has a broad spread of clients, ranging from start-ups to major UK and global corporations, many of which are household names. Clients of the firm value its commitment to professional excellence and technical expertise.

Mathys & Squire has over 100 attorneys (both training and qualified) and a dedicated IP consulting team across offices in London, Birmingham, Cambridge, Manchester, Newcastle, Oxford, Luxembourg, Munich and Paris, as well as teams based in China and Japan. The firm's attorneys and trainees have a mix of scientific degrees extending from chemistry, biochemistry, pharmacology, genetics, microbiology, plant sciences and zoology through to physics, electronics, telecommunications and engineering.

We are passionate about creating and delivering innovative, high-quality, client-focused services and building close and longstanding relationships with clients in order to establish defensive and offensive IP portfolios that generate commercial value. We are proactive when working with clients and valued for our integrity, honesty and collegiate approach.

We protect, so that you can invent the future.

Contents

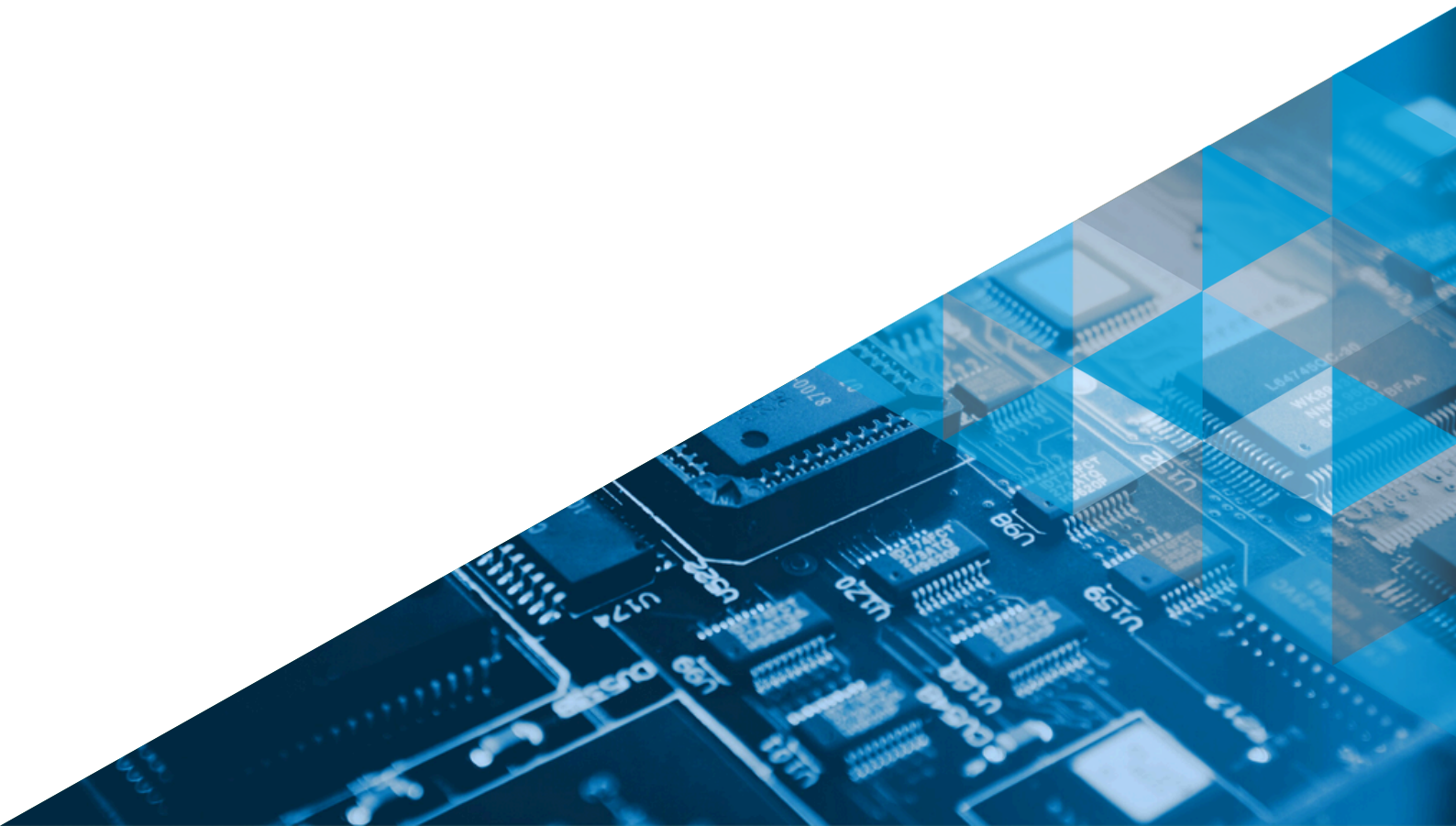
Introduction

Previously, Mathys & Squire sampled a range of applicants in the healthcare sector and investigated their engagement with the Unitary Patent system (view our report here).

That analysis revealed that, contrary to popular belief, there was no blanket approach by healthcare companies to engagement with the Unitary Patent system. Rather, we observed widely diverging approaches between different applicants, ranging from almost universal engagement to widespread avoidance.

Healthcare applicants are understandably cautious about their engagement with the Unitary Patent system and the possibility of central revocation of the small number of highly valuable patents protecting their products.

This report will be looking at the field of IT and engineering, in which applicants will have different concerns. Mathys & Squire's survey analyses the number of Unitary Patents granted in 2023 and 2024, across six technical areas: digital communication, semiconductors and microchips, civil engineering, transport, defence, and electrical machinery, apparatus and energy. A range of applicants in each area was also sampled to assess the activity of specific applicants.



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Nicholas is a solicitor specialising in intellectual property law. In addition to being qualified as a solicitor, he also qualified as a European and Chartered British patent attorney with full rights of audience to appear in intellectual property proceedings at all levels in the English High Court, and is also qualified and admitted as an Attorney-at-Law in the State of New York.

Nicholas specialises in contentious and non-contentious intellectual property matters with a focus on patent litigation in the English courts and acting before the European Patent Office. He has experience litigating cases involving a wide range of technologies ranging from biotechnology through to electronics, software and communications.

Nicholas is the author of the practitioner's work, 'A Guide to the EPC 2000' and is the consulting editor and author of the UK intellectual property, European patents, European enforcement and Unified Patent Court chapters of the book 'Intellectual Property in Electronics and Software' published by Globe Law and Business.

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Maxwell is a qualified European Patent Attorney. He joined Mathys & Squire in 2023 as part of the Life Sciences & Chemistry team.

Maxwell has experience in the prosecution and opposition of European patent applications. He has been involved in drafting new patent applications for clients ranging from multinational companies to universities, and he particularly enjoys speaking to inventors about their new products.

Maxwell has also helped to secure patent term extension, patent listing, and regulatory data protection for marketed pharmaceutical products.

Maxwell has a first class master's degree in chemistry from the University of Oxford. He also holds a DPhil in organic chemistry from the University of Oxford.

The Unitary Patent System - Background

The Unitary Patent System

The Unitary Patent system came into effect on 1 June 2023. Prior to that date, whenever a European Patent was granted, the European Patent automatically became a bundle of national rights for each of the countries designated in the patent. Such national rights need to be maintained separately. In contrast, a Unitary Patent is a unitary right which provides patent protection across all the member states participating in the Unitary Patent system.

Maintaining a European Patent as a Unitary Patent is potentially a cost-effective way for patent proprietors to obtain wide geographical protection in Europe. The maintenance fees for a Unitary Patent are roughly equivalent to the cost of maintaining national patent protection in four European countries and can be obtained by filing a single translation of the granted patent with the European Patent Office – into English if a patent is prosecuted in French or German or into any EU language if a patent is prosecuted in English. This contrasts to national rights where in many cases the filing of a translation of the patent or the claims of the patent into a national language is required to maintain rights in force in a particular jurisdiction.

Actions to enforce a Unitary Patent can only be brought in the Unitary Patent Court. The Unitary Patent Court also has exclusive jurisdiction to invalidate Unitary Patents. If revoked, a Unitary Patent is invalidated in all the jurisdictions where it has effect. This is unlike an equivalent bundle of national rights where each national patent has effect only in a single jurisdiction and invalidating an individual national patent has no effect on equivalent national patents arising from the grant of the same European patent.

Applicants in the IT and Telecoms Field

In contrast to the life sciences where relatively few, but highly valuable, patents are granted, the number of patents in the electronics fields is much larger. Applicants in the IT and telecoms fields consistently appear at the top of the European Patent Office's list of most frequent filers. However, unlike the life sciences, where patents are normally validated and maintained in a large number of countries, most electronics patents are only ever maintained in the UK, Germany and France. This is more cost effective as due to the London Agreement, applicants do not need to translate their patent into a national language for the patent to have effect in those countries.

For such applicants, engaging with the Unitary Patent system involves a cost. When applicants are obtaining upwards of 1000 granted patents a year, the costs of such translations (typically around €5,000 per patent) will mount up.

Therefore, continuing with the existing approach of only validating patents in the UK, Germany and France, where protection can be obtained without incurring the translation fees, remains attractive.

Applicants in the Engineering Field

Compared with IT and telecoms, engineering is a half-way house. The volume of patents in the mechanical and engineering sectors is far lower than in the IT and telecoms fields. However, engineering patents are normally maintained more broadly than IT and telecoms patents – typically in around 4-6 jurisdictions (often the UK, Germany and France, and in addition 2-3 other major jurisdictions often selected from Italy, Spain, and the Netherlands). As such, engineering patents very much hit the sweet spot for using the Unitary Patent system. Where patents have traditionally been maintained more broadly, the Unitary Patent system potentially provides the means for patentees to obtain broad geographical coverage at a lower cost than was possible in the past.

In addition, although Unitary Patents are always subject to the jurisdiction of the Unified Patent Court, and as unitary rights they are always subject to the threat of central invalidation, relatively few IT and engineering patents are ever involved in litigation or are the subject of EPO oppositions compared with the life sciences. Opposition rates rarely exceed 3% and for many of these areas of technology opposition rates of less than 1% are common.

Therefore, the Unitary Patent system potentially provides many upsides for engineering applicants with relatively low levels of risk.

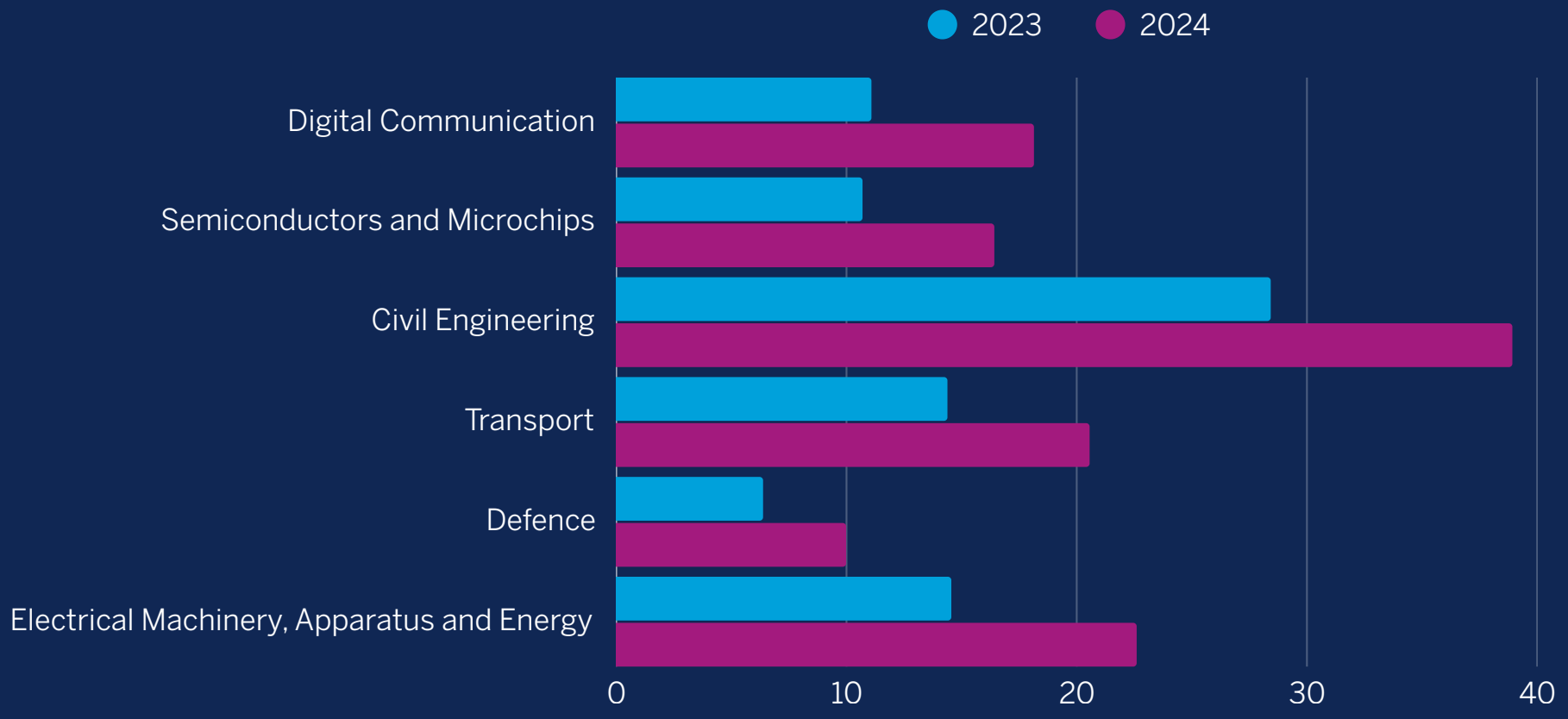
IT and Engineering Unitary Patents - Survey

Unitary Patents have been available since 1 June 2023. Unsurprisingly, as shown in FIG. 1, the percentage of granted IT and engineering Unitary Patents in 2024 was higher than 2023 across all technical fields, as Unitary Patents were not available for the first five months of 2023. Although applicants had the option of delaying the grant of patents issued in the first half of 2023 until Unitary Patents became available, relatively few applicants took advantage of this.

Approximately 40% of all civil engineering patents granted in Europe in 2024 were maintained as Unitary Patents, up from nearly 30% in 2023. The fields of electrical machinery, apparatus and energy, and transport saw the next highest conversion to Unitary Patents. However, digital communication and semiconductors were not far behind.

Interestingly, and contrary to expectation, the percentages of Unitary Patents observed in all IT and engineering fields were lower than the four healthcare fields covered in our previous report, apart from civil engineering.

FIG. 1: Percentage UPs by Technical Field



Digital Communication

FIG. 2 shows the results of our survey of major patentees for patent applications relating to digital communication. The graph shows the number of European Patents (EPs) each applicant has chosen to maintain as national rights and the number of patents where the applicant has opted to have the patents maintained as Unitary Patents (UPs). The figure then further breaks these numbers down across patents granted in 2023 and 2024 to identify any change in individual applicant's behaviour.

Many of the significant filers in digital communication have engaged very little with the Unitary Patent system, having either zero or a single digit number of Unitary Patents granted in 2023/2024. Cisco Communications, Datang Mobile, Microsoft, and Sony and did not convert any of their European patents granted in 2023 or 2024 into Unitary Patents.

Other significant filers, including LG Group, Xiaomi and ZTE, each converted a single European Patent into a Unitary Patent in 2023, whilst Cisco Communications, Deutsche Telekom, Google, NTT and ZTE each obtained a single Unitary Patent in 2024. Potentially, these might have been chosen as "test cases" for using the Unitary Patent system or for specific reasons relating to the individual inventions that the patents cover.

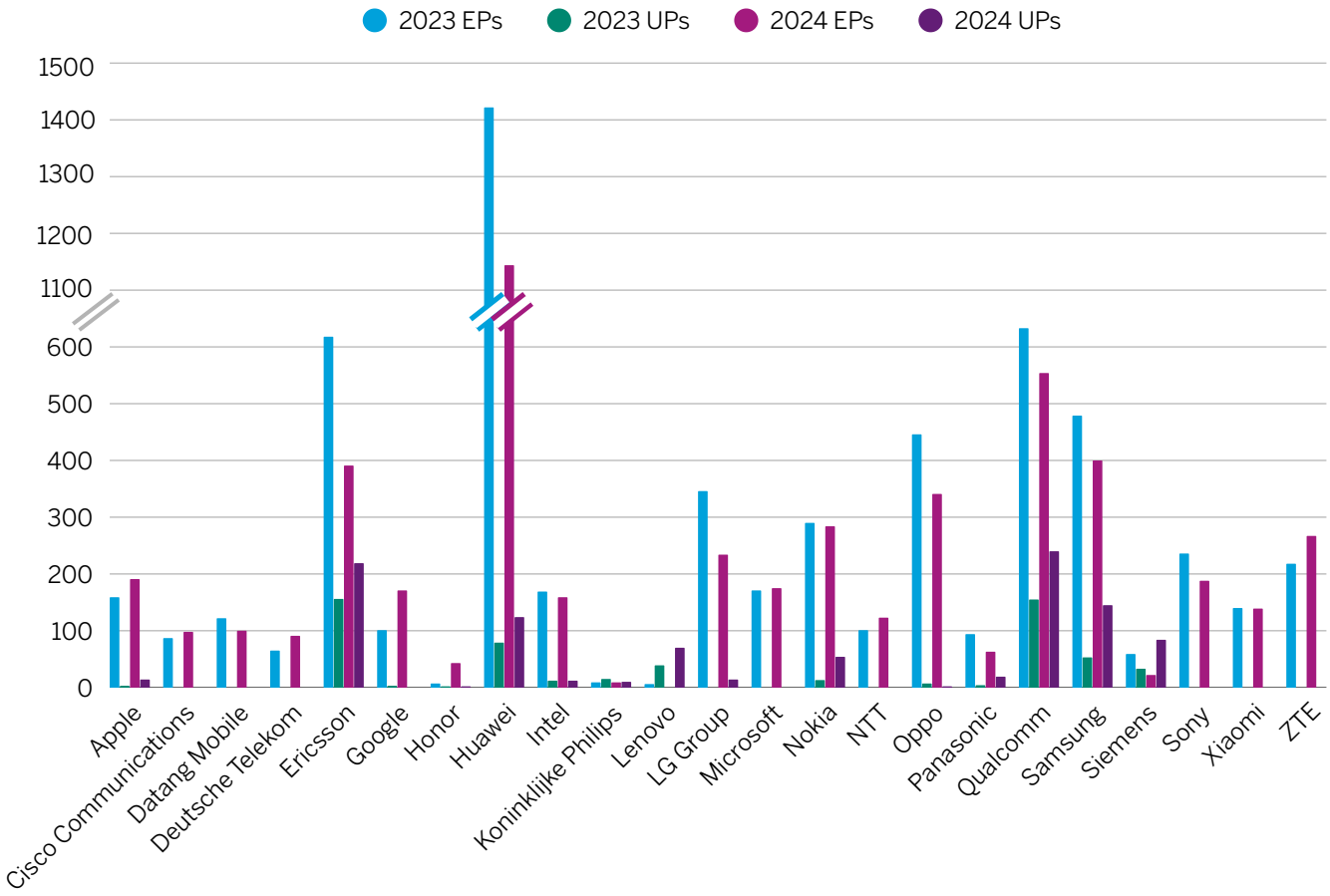


FIG. 2: Granted EPs and UPs - Digital Communication

On the other hand, the Unitary Patent system was used more widely by other applicants including Ericsson, Huawei, Intel, Koninklijke Philips, Lenovo, Nokia, Panasonic, Qualcomm, Samsung and Siemens.

In 2024, each of Ericsson, Huawei, Qualcomm and Samsung converted a notably high number of European Patents into Unitary Patents, reaching the triple digits. Clearly, these applicants concluded that the wider geographical coverage of a Unitary Patent outweighs the cost of obtaining and filing a translation of the patent description with the EPO.

At least in some of these cases, that could be because these applicants required protection in Spain (a country which does not participate in the Unitary Patent system) – the applicants can use the translation of a patent into Spanish (which they require for protection in Spain) as the translation used to obtain a Unitary Patent.

Of all the applicants sampled in this survey, Lenovo converted the greatest proportion of their digital communication European Patents into Unitary Patents. Specifically, Lenovo had 39 Unitary Patents granted in 2023 (compared to 6 European Patents maintained as a bundle of national rights). In 2024, all 70 of Lenovo's digital communication European Patents were maintained as Unitary Patents.

Covering all areas of technology, Lenovo maintained 42 European Patents as Unitary Patents in 2023 (compared to 7 European Patents maintained as a bundle of national rights). In 2024, 74 Unitary Patents were granted to Lenovo in all areas of technology, and zero European Patents were maintained as a bundle of national rights.

Many of the significant filers in digital communication have engaged very little with the Unitary Patent system, having either zero or a single digit number of Unitary Patents granted in 2023/2024.

Semiconductors and Microchips

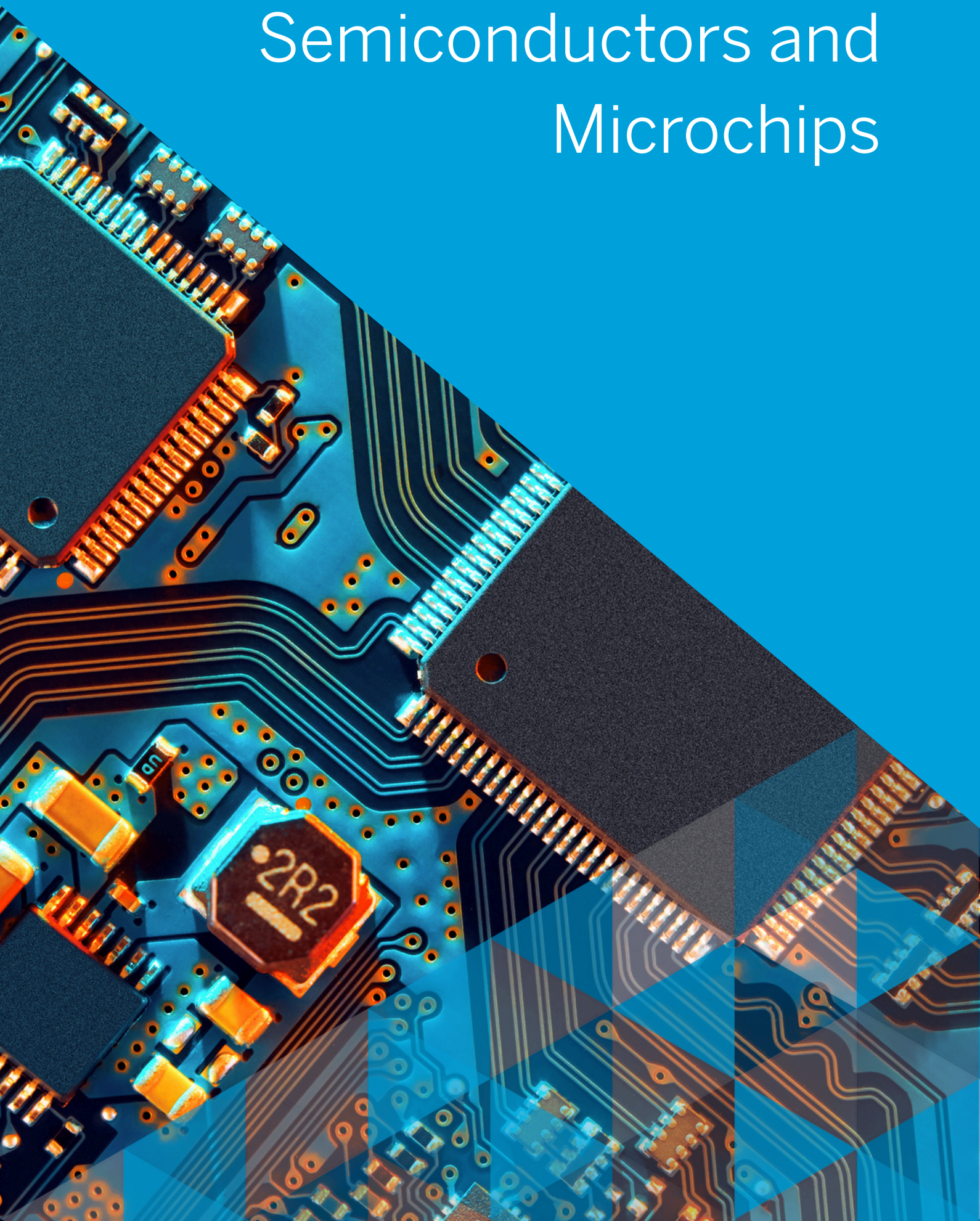


FIG. 3 shows the results of our survey of top filers for patent applications relating to semiconductors and microchips.

In general, the proportion of patents maintained as Unitary Patents in both 2023 and 2024 in this field is lower than that observed for digital communication. With the exception of Qualcomm, this is also apparent for each of the specific applicants that were sampled in both digital communication and semiconductors in 2024 i.e. Apple, Google, Intel, Samsung and Siemens.

In total, half of the sampled applicants in the semiconductors field did not convert any of their European Patents granted in 2023 or 2024 into Unitary Patents. In comparison, only around 15% of the digital communication applicants chose not to engage with the Unitary Patent system.

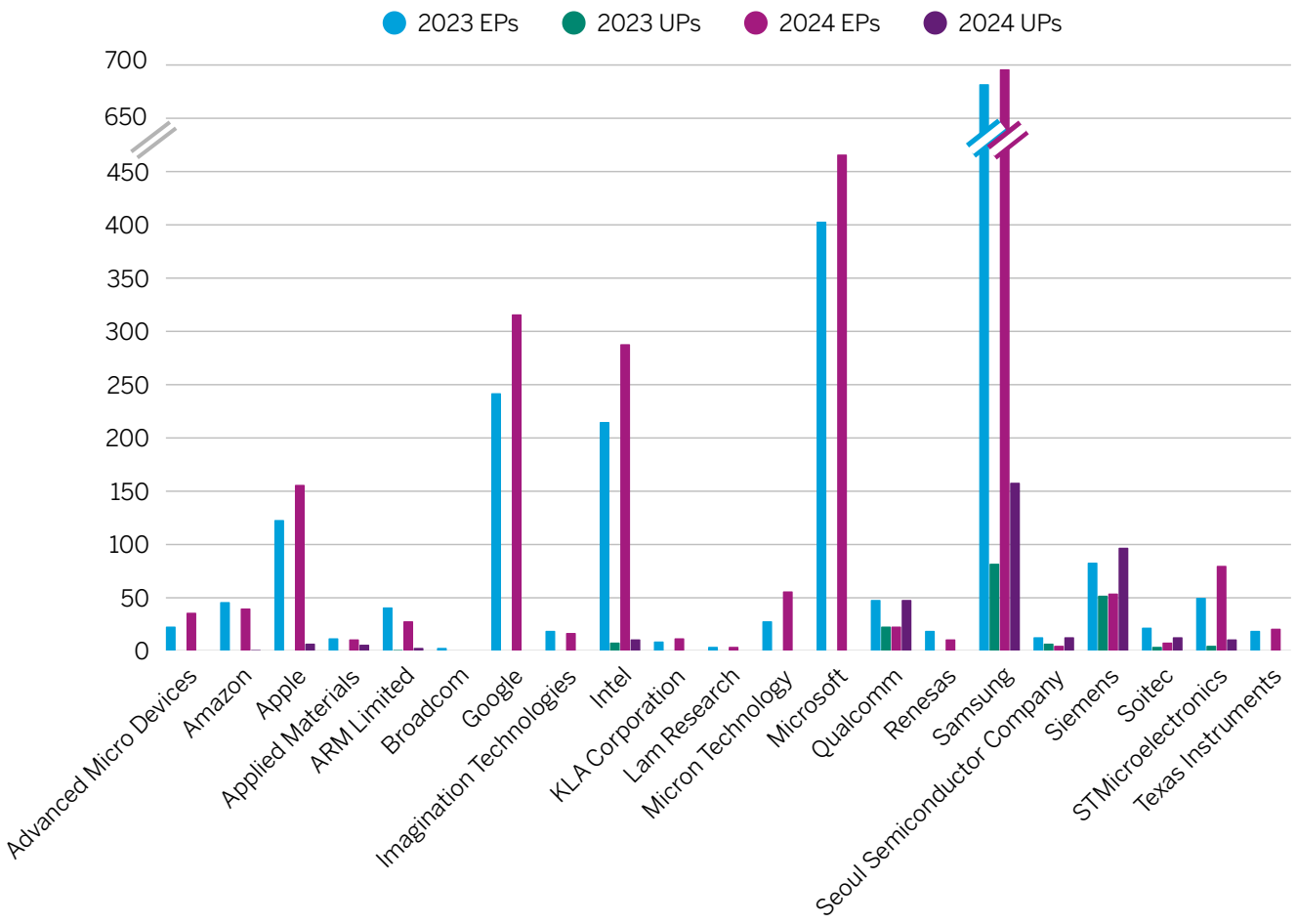


FIG. 3: Granted EPs and UPs - Semiconductors and Microchips

Several applicants were more enthusiastic users of the Unitary Patent system, for example Applied Materials, Qualcomm, Samsung, Seoul Semiconductor Company, Siemens, Soitec and STMicroelectronics.

Notably, in 2024, Qualcomm, Seoul Semiconductor Company, Siemens and Soitec all converted a greater number of European Patents into Unitary Patents than they chose to maintain as bundles of national rights.

Qualcomm stands out for converting more than twice as many European Patents into Unitary Patents in 2024 (48) compared to the number of European Patents that they maintained as a bundle of national rights (23). This is much higher than the proportion of European Patents which Qualcomm converted into Unitary Patents in the field of digital technology in 2024 – 240 Unitary Patents compared to 554 European Patents in 2024.

We can also note that the absolute numbers of digital communication patents are much higher than the numbers granted for semiconductors and microchips.

In addition, several major applicants in this field pursue national filing strategies e.g. filing applications directly with the UK, French and German Patent Offices, instead of applying for European Patents. Such national patents cannot later become Unitary Patents.

The fact that this national route remains of importance potentially signals that many major applicants in this field consider protection in a limited number of key jurisdictions to be sufficient.

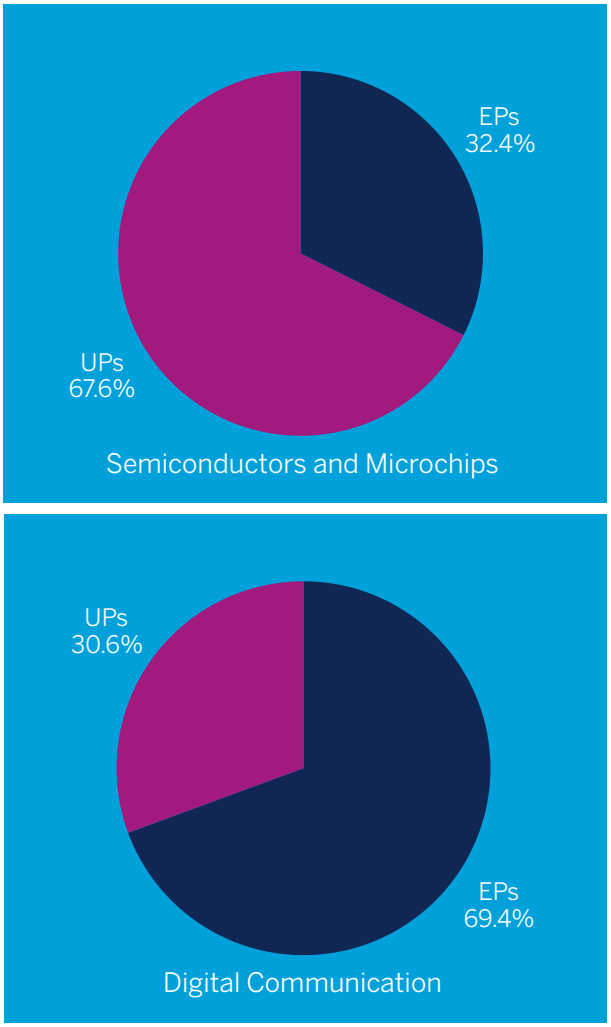
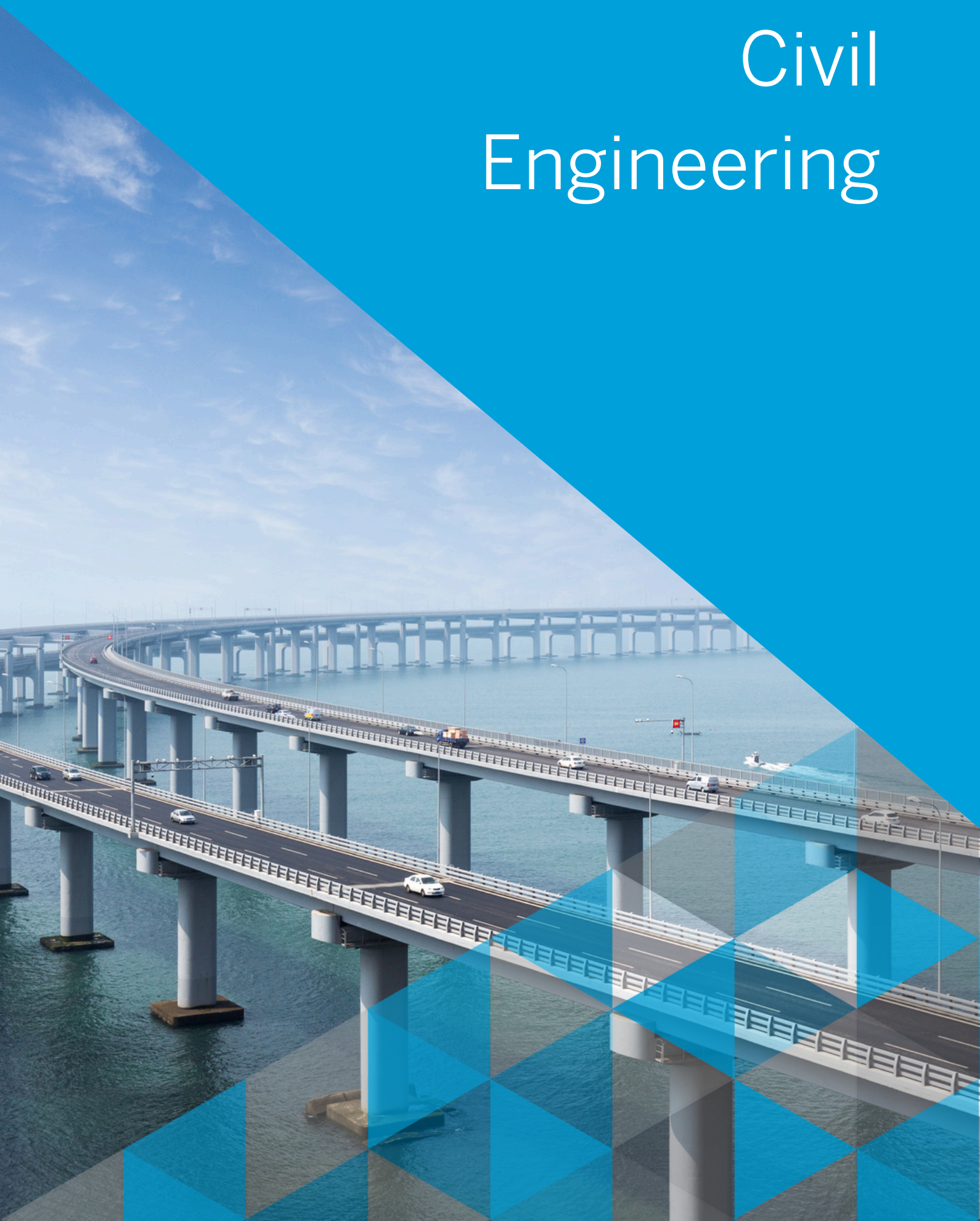


FIG 4. Patents Maintained by Qualcomm in 2024

Civil Engineering



As shown in FIG. 1, the greatest percentage of European Patents maintained as Unitary Patents was observed in the field of civil engineering (approximately 30% and 40% in 2023 and 2024, respectively). The data obtained in our survey for specific civil engineering applicants is shown in FIG. 5.

Very different approaches towards the Unitary Patent system have been taken by different applicants working within similar sectors within the field of civil engineering.

Construction materials companies

For example, in the area of construction materials (e.g. locks, doors windows etc.), whilst Assa Abloy, Rockwool, and VKR Holding converted significant numbers of their European Patents into Unitary Patents in both 2023 and 2024, Liebherr-Werk Biberach and Välinge Innovation are yet to convert any of their European Patents into Unitary Patents.

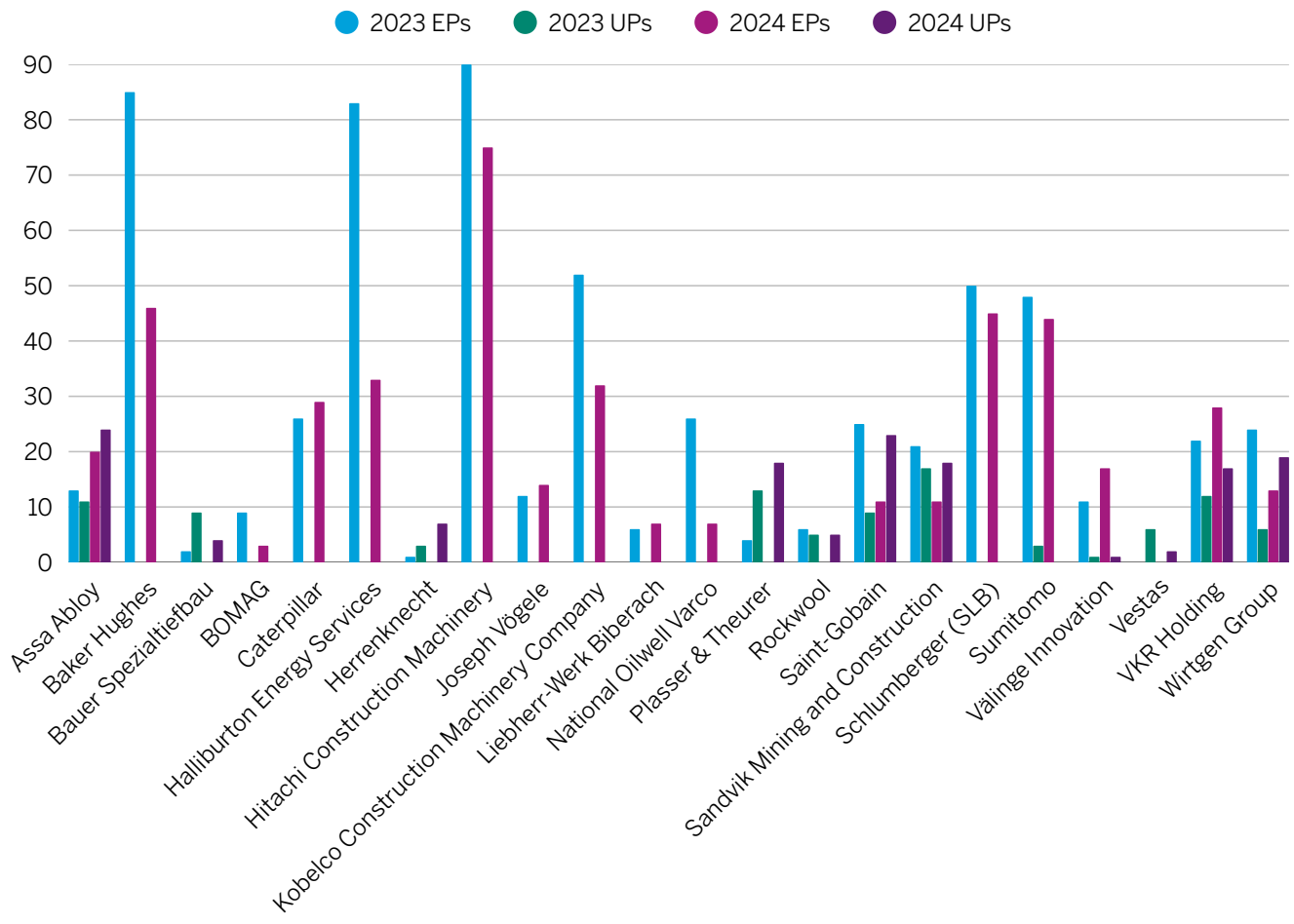


FIG. 5: Granted EPs and UPs - Civil Engineering

Construction conglomerates

Similarly, the approaches of multinational construction conglomerates, Saint-Gobain and Sumitomo, diverge significantly.

Saint-Gobain converted 9 European Patents into Unitary Patents in 2023 and then 23 European Patents into Unitary Patents in 2024. In contrast, although Sumitomo obtained 3 Unitary Patents in 2023 (compared to 48 European Patents maintained as a bundle of national rights), zero European Patents were converted into Unitary Patents in 2024 (compared to 44 European Patents maintained as a bundle of national rights).

Construction machinery companies

We can observe a corresponding division for construction machinery companies. BOMAG, Caterpillar, Hitachi Construction Machinery, and Kobelco Construction Machinery Company are all yet to obtain any Unitary Patents. In contrast, Bauer Spezialtiefbau and Wirtgen Group (part of Deere & Company) have converted significant numbers of their European Patents into Unitary Patents, with Bauer Spezialtiefbau converting the majority of their civil engineering European Patents into Unitary Patents in both 2023 and 2024.

Companies in the oil industry

A very clear reluctance to engage with the Unitary Patent system has been observed for applicants in the oil industry.

In the case of the applicants surveyed, Baker Hughes, Halliburton Energy Services, National Oilwell Varco and Schlumberger (SLB) all exclusively maintained their European Patents as bundles of national rights – not a single Unitary Patent was obtained in either 2023 or 2024 for any of these applicants in this field.

A possible reason for this reluctance may be the relatively restricted geographical scope required for protection which in many cases is limited to Norway and the UK, neither of which participates in the Unified Patent system.

In short, although compared with other sectors the proportion of European Patents maintained as Unitary Patents is relatively high for civil engineering, this is largely due to a number of specific applicants converting a significant proportion of their European Patents into Unitary Patents rather than a wide adoption of Unitary Patents across the entire field.

Applicants seem to be adopting either an all-in (or at least a strong engagement with the Unitary Patent system) or an all-out approach, reflected in the fact that of the 22 civil engineering applicants sampled, 10 of these applicants are yet to obtain any Unitary Patents.

Transport

The results of our survey for the field of transport are shown in FIG. 6.

Again, the data for applicants in the transport sector is nuanced. Of the 17 car manufacturers sampled, only Geely, Mercedes-Benz and XPeng converted a significant proportion of their European Patents into Unitary patents, whereas many others, including BMW, BYD, Honda, Hyundai, Nissan, Renault, Stellantis, Tesla, Toyota and Volvo Car Corporation, are yet to engage with the Unitary Patent system.

Notably, Mercedes-Benz converted three times as many European Patents into Unitary patents in 2023 (15) as those which were maintained as bundles of national rights (5). Then in 2024, all of Mercedes-Benz's transport European Patents were converted into Unitary Patents – a total of 50 Unitary Patents, an enthusiastic embrace of the Unitary Patent system which is very different from the approach of many of its European and international rivals.

This approach has also been adopted by XPeng which uniformly converts all their European patents into Unitary Patents.

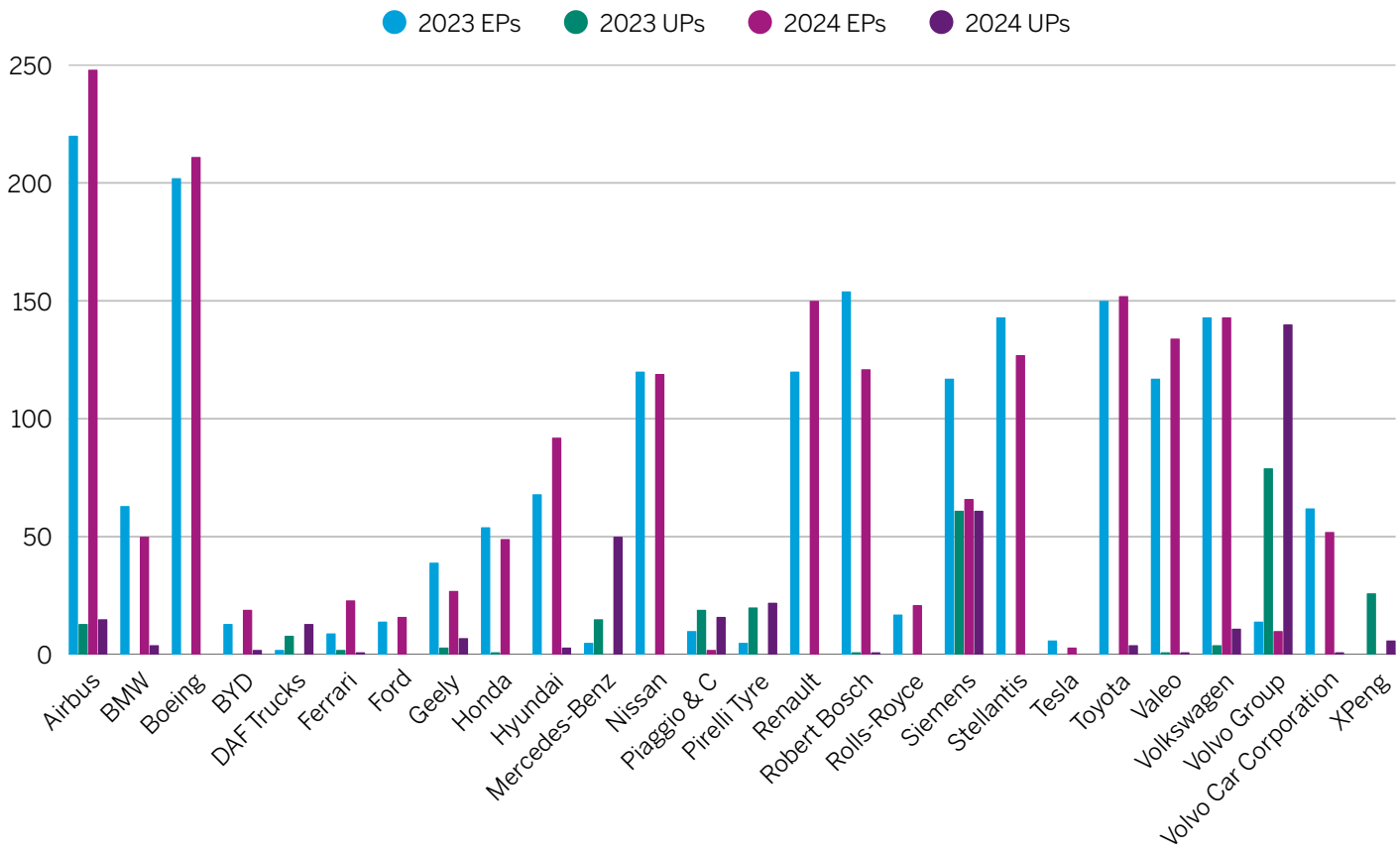


FIG. 6: Granted EPs and UPs - Transport

Aircraft manufacturers, Boeing and Rolls-Royce, have not yet obtained any Unitary Patents in the field of transport.

In contrast, Airbus converted 13 and 15 European Patents into Unitary Patents in 2023 and 2024, respectively, with most of the Airbus Unitary Patents (9 out of 13 in 2023 and 12 out of 15 in 2024) being granted in the name of Airbus space and defense subsidiaries. The specific subject matter of these applications may have influenced the decision to convert these European Patents into Unitary Patents.

Truck manufacturers, including DAF Trucks and Volvo Group, were particularly high users of the Unitary Patent system – all 13 of DAF Trucks' European Patents granted in 2024 were converted into Unitary Patents. Similarly, 140 European Patents were converted into Unitary Patents by Volvo Group in 2024 compared to only 10 that were maintained as a bundle of national rights.

We can also observe increased use of the Unitary Patent system for the motorcycle manufacturer Piaggio & C. Most of their transport European Patents were maintained as Unitary Patents in 2024 (16 Unitary Patents compared to 2 European Patents maintained as a bundle of national rights).

Among suppliers of parts to the transport industry, use of the Unitary Patent system was divided. At one extreme, Pirelli Tyre converted most of their European Patents into Unitary Patents in 2023 (20 Unitary Patents compared to 5 European Patents maintained as a bundle of national rights) and all of their European Patents were maintained as Unitary Patents in 2024.

In contrast, both Robert Bosch and Valeo converted just a single European Patent into a Unitary Patent in both 2023 and 2024 – the remainder of their European Patents (triple digit numbers in both 2023 and 2024) were maintained as a bundle of national rights.

In 2024, all of Mercedes-Benz's transport European Patents were converted into Unitary Patents – a total of 50 Unitary Patents, an enthusiastic embrace of the Unitary Patent system which is very different from the approach of many of its European and international rivals.

Defence

FIG. 7 shows a similar analysis for granted patents in the field of defence.

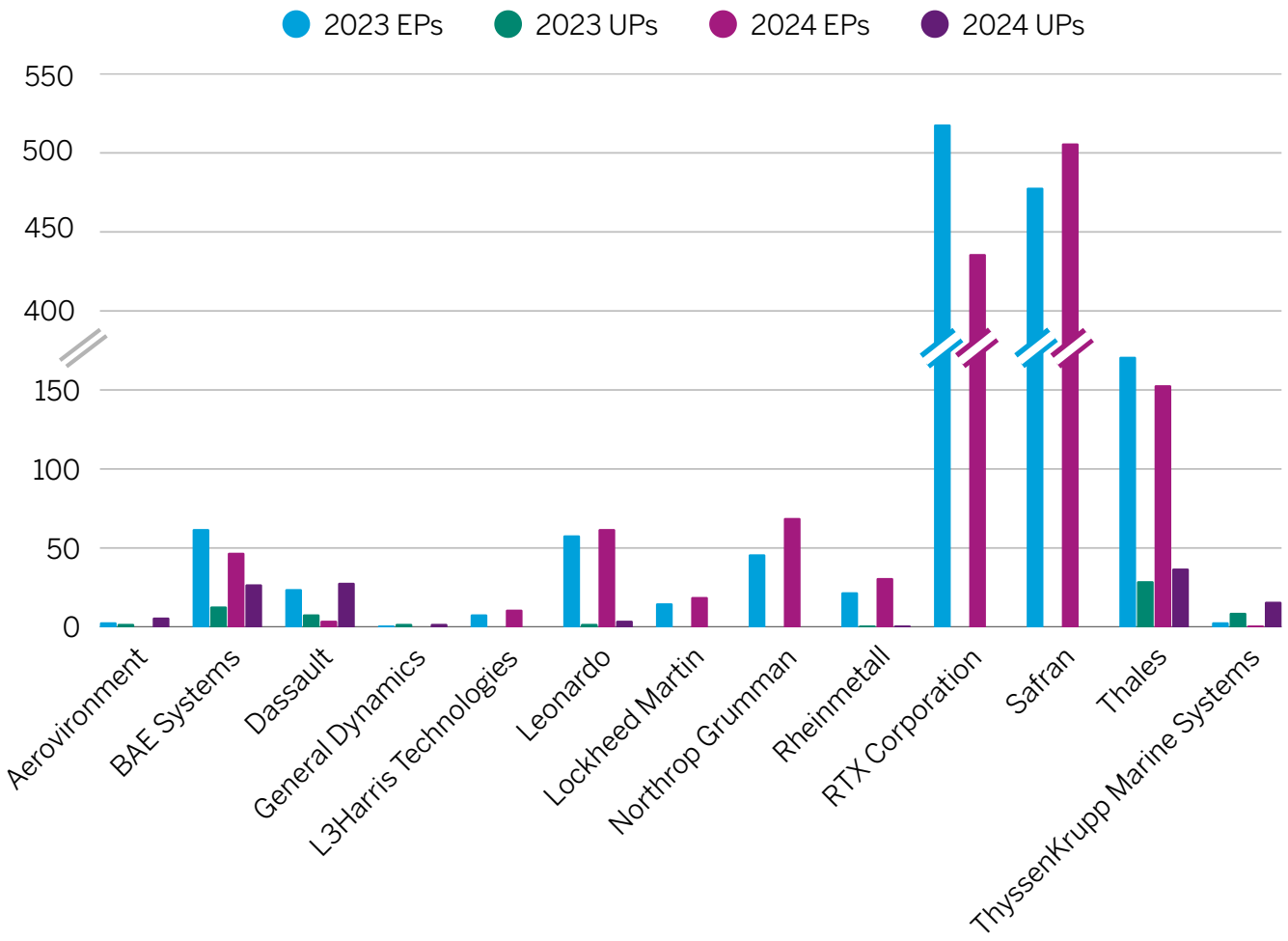


FIG. 7: Granted EPs and UPs - Defence

Applicants in the defence field are very divided in their approach to the Unitary Patent system.

Many of the largest global defence companies, including L3Harris Technologies, Lockheed Martin, Northrop Grumman, RTX Corporation and Safran, did not obtain any Unitary Patents in either 2023 or 2024, and maintained all of their European Patents as a bundle of national rights.

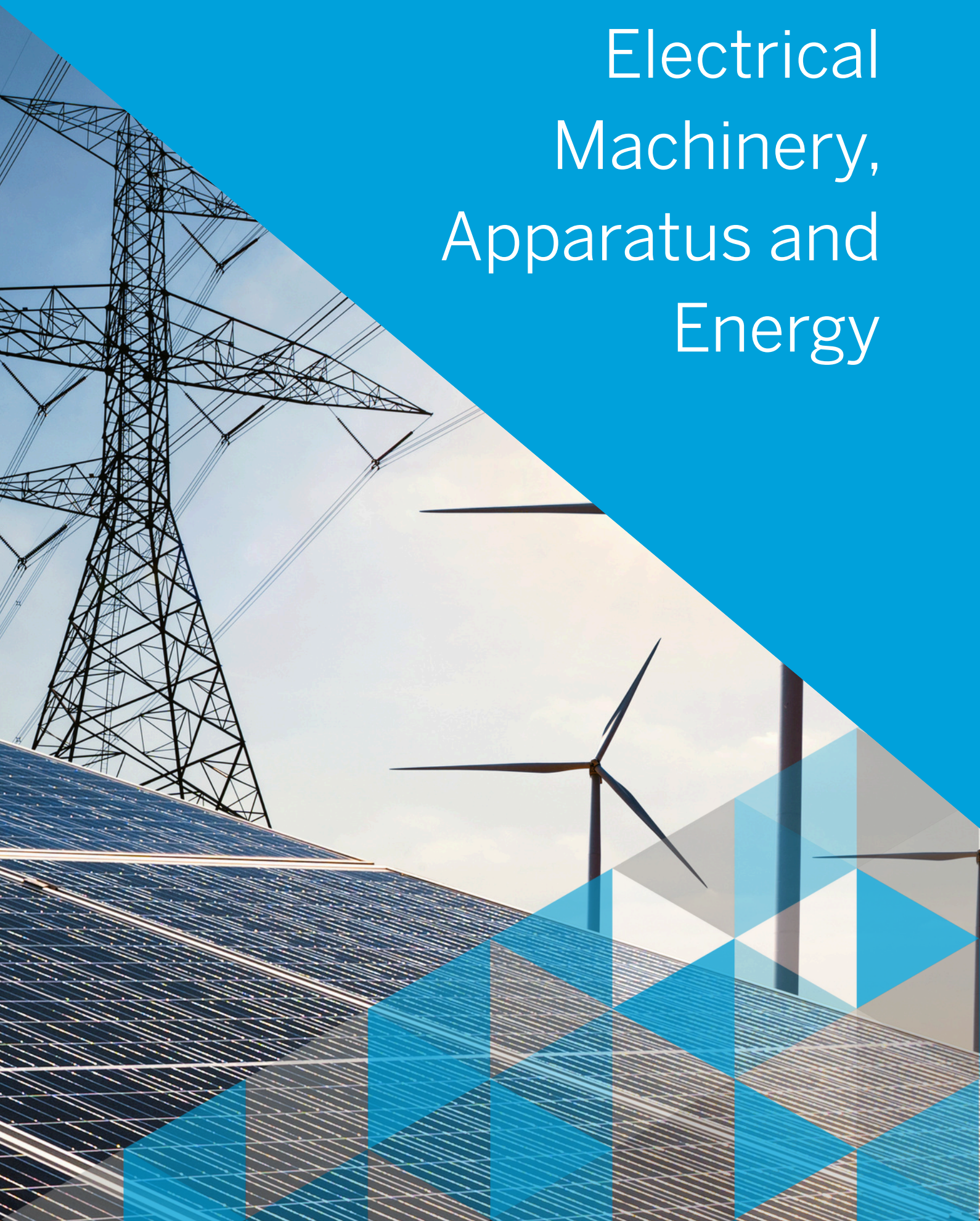
Together these companies account for nearly half of the market capitalisation of the global defence industry (approximately $540 billion of $1.3 trillion).

However, several large applicants are more enthusiastic users of the Unitary Patent system, including Aerovironment, BAE Systems, General Dynamics, Thales, and ThyssenKrupp Marine Systems.

In particular, General Dynamics converted all of their European Patents into Unitary Patents in 2024, and Dassault and ThyssenKrupp Marine Systems converted most of theirs.

ThyssenKrupp Marine Systems obtained more Unitary Patents than European Patents in both 2023 (9 Unitary Patents compared to 3 European Patents maintained as a bundle of national rights) and 2024 (16 Unitary Patents compared to a single European Patent maintained as a bundle of national rights).

Electrical Machinery, Apparatus and Energy



The electrical machinery, apparatus and energy field includes a broad range of technologies ranging from power cables, magnets and relays to X-ray techniques. The results of our survey are shown in FIG. 8.

Again, widely varying approaches to the Unitary Patent system were observed for different applicants.

While many applicants had little to no engagement with the Unitary Patent system (General Electric, Mitsubishi, Panasonic, Robert Bosch, SK On, TE Connectivity, Toyota and Valeo), there were a small number of applicants that obtained a significant number of Unitary Patents (CATL (Contemporary Amperex Technology), Hitachi, Samsung, Schneider Electric, Siemens and Signify).

CATL and Siemens in particular converted notably large numbers of European Patents into Unitary Patents in 2024 (72 and 102, respectively).

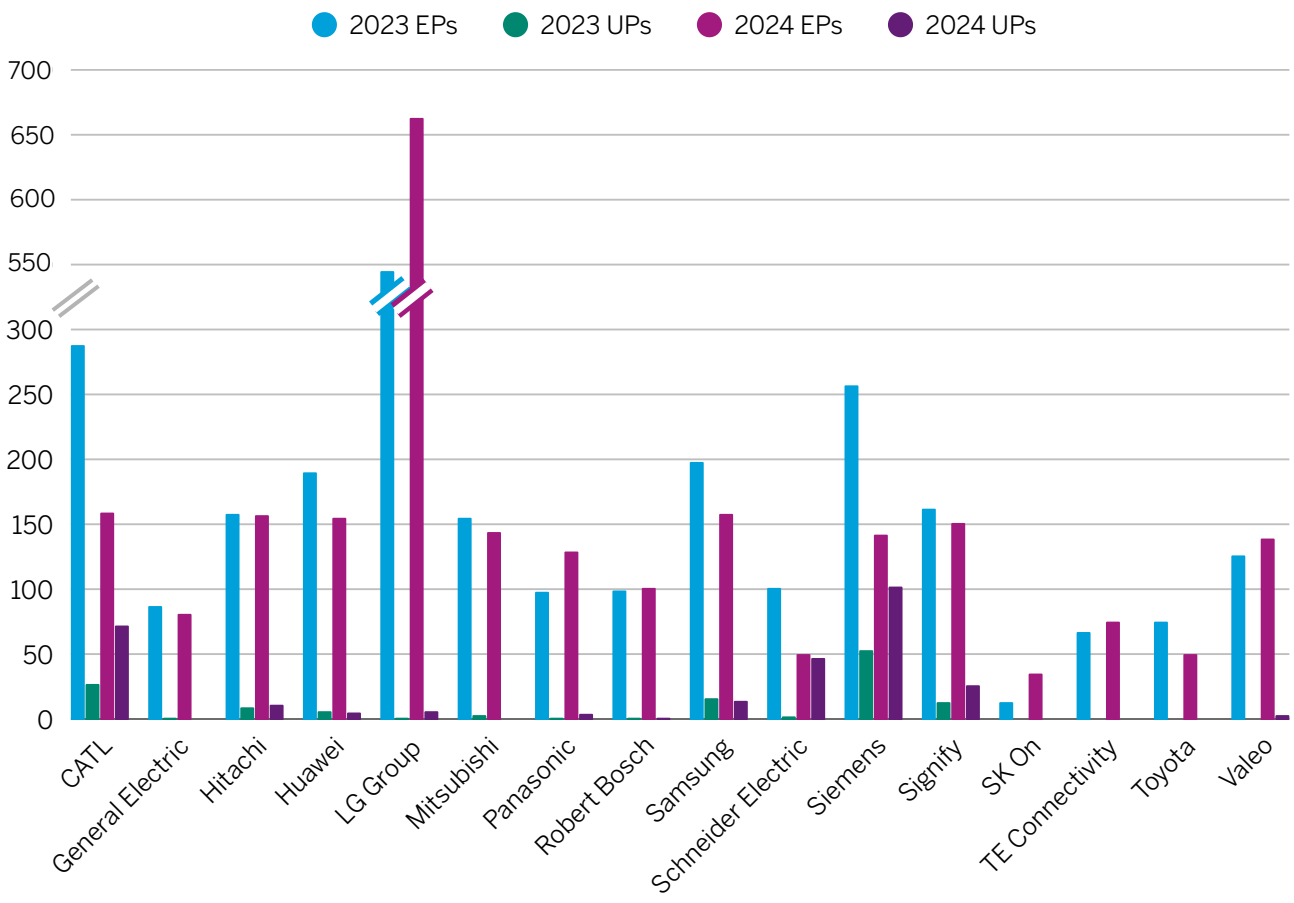


FIG. 8: Granted EPs and UPs - Electrical Machinery, Apparatus and Energy

Similarly to the other fields sampled, we can observe an increased adoption of the Unitary Patent system over time for many applicants. Almost twice as many European Patents were maintained as Unitary Patents in 2024 compared to 2023 by CATL, Siemens, and Signify (as opposed to being maintained as a bundle of national rights). The number of Schneider Electric Unitary Patents in particular increased significantly from 2 in 2023 to 47 in 2024.

Several applicants converted a lower proportion of their European Patents into Unitary Patents in the field of electrical machinery, apparatus, and energy, than for other fields.

For example, Huawei, LG Group, Panasonic and Samsung all converted a lower proportion of electrical machinery, apparatus, and energy European Patents into Unitary Patents than in the field of digital communication. More specifically, a conversion rate of approximately 25% was observed for both Panasonic and Samsung for digital communication in 2024, but this was reduced to only 3% and 8%, respectively, for electrical machinery, apparatus, and energy in the same year.

Notably, Samsung was granted more than three times as many digital communication patents than for electrical machinery, apparatus, and energy. This suggests that the difference in conversion rates is technology specific rather than primarily being driven by a simple aversion to translation costs.

The data suggests that the difference in conversion rates is technology specific rather than primarily being driven by a simple aversion to translation costs.

Concluding Remarks

As shown above, different applicants adopt strikingly different approaches to the use of the Unitary Patent system. Several applicants are converting significant proportions of their European Patents into Unitary Patents – resulting in triple digit numbers of Unitary Patents in some cases. This marks a significant departure from the traditional approach in which electronics patents are often only validated in the UK, France, and Germany.

In 2024, several applicants converted all of their European Patents into Unitary Patents in a variety of different fields (e.g. Lenovo – digital communication; Bauer Spezialtiefbau/Herrenknecht/Plasser & Theurer/Rockwool/Vestas – civil engineering; DAF Trucks/Mercedes-Benz/Pirelli Tyre/XPeng – transport; and Aerovironment/General Dynamics – defence). In many cases the sample size is small, but increased adoption of the Unitary Patent system was generally observed across all areas of IT and engineering, both for the field as a whole and for the specific applicants sampled.

Widespread adoption of the Unitary Patent has not been limited to European-domiciled companies. Several US and Asian applicants now maintain a significant proportion of patents in Europe as Unitary Patents.

Given that many patents in IT and engineering were often only maintained in countries which did not require full patent translations to be filed, the fact that a translation is required in order to obtain a Unitary Patent is a significant factor which is slowing the uptake of Unitary patents. However, the obligation to file a translation will be up for review in 2029 and every two years thereafter. Whether the obligation to file a translation will be dropped is dependent upon the availability of high quality machine translations into all EU languages. Given the continued improvement in the quality of machine translations, it is quite possible that the obligation will be removed sooner rather than later, which will provide a significant boost for the uptake of Unitary Patents.

Overall, there is every reason to be optimistic that the number (and proportion) of European Patents maintained as Unitary Patents will continue to increase.

Methodology

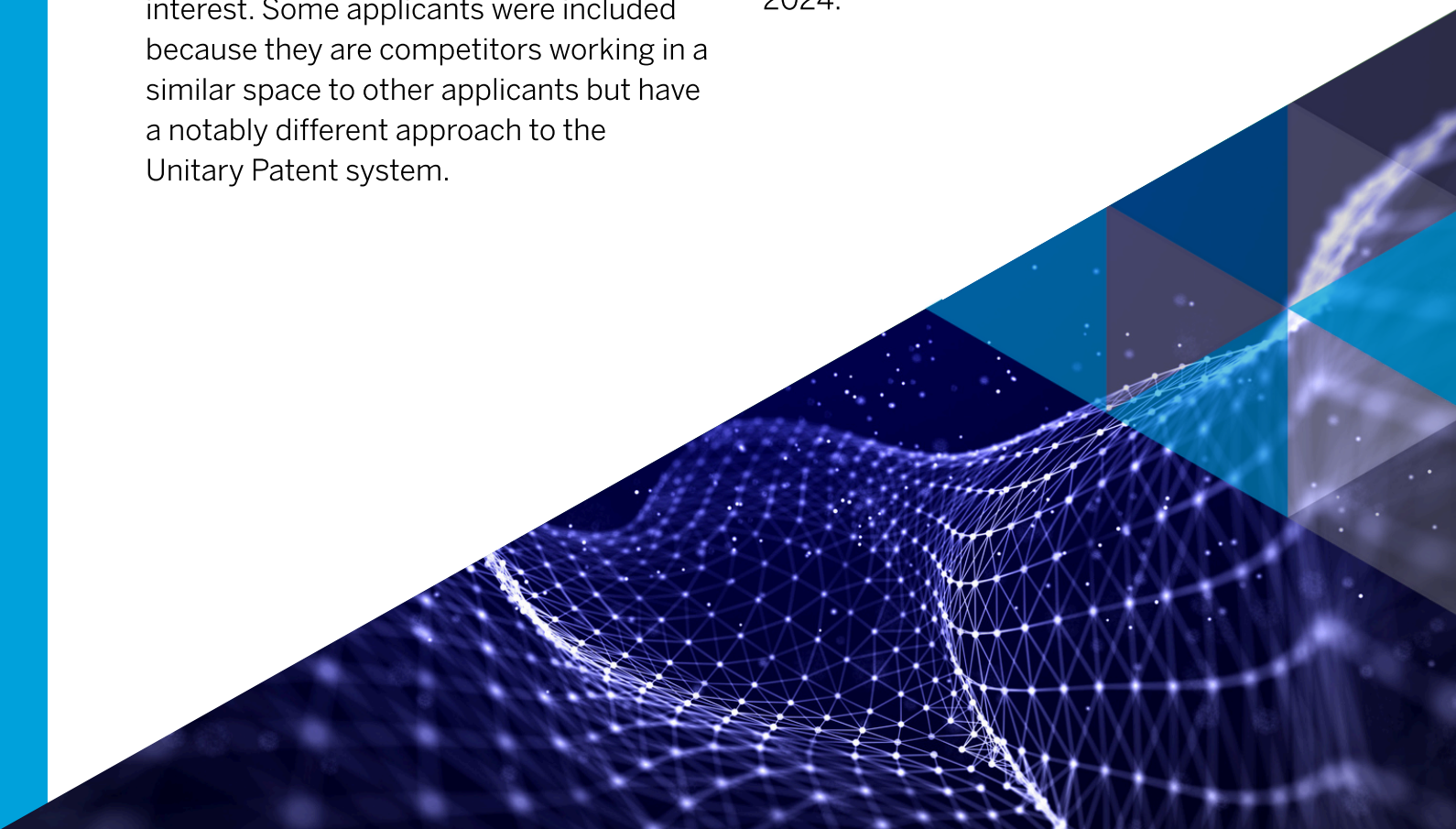
A comprehensive list of applicants in the IT and engineering sector was compiled with respect to six different industry areas. The sample from which the applicants were selected was not limited to any specific country or continent. The sectors' lists are not mutually exclusive and applicants which file patent applications in multiple areas of technology have been included in whichever categories apply.

To narrow down the number of applicants surveyed, two factors were taken into consideration: the number of patents the applicants filed at the EPO in 2023 and 2024, and how well known they are in their field. The priority was to include the top filers, but also select applicants of interest. Some applicants were included because they are competitors working in a similar space to other applicants but have a notably different approach to the Unitary Patent system.

In total the patent activity of over 100 applicants was analysed. The sectors which constitute IT and engineering were taken to be:

- Digital communication
- Semiconductors and microchips
- Civil engineering
- Transport
- Defence
- Electric machinery, apparatus and energy

The data was obtained from the EPO Register. The data extracted included the number of European Patents granted to each applicant in 2023 and 2024, and the number of patents maintained as Unitary Patents by each applicant in 2023 and 2024.



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